



TURKISH ECONOMIC ASSOCIATION

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EXPORT DEPENDENCE AND SUSTAINABILITY OF GROWTH IN CHINA AND THE EAST ASIAN PRODUCTION NETWORK

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June, 2010

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APRIL 2010

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I. INTRODUCTION AND SUMMARY

A key issue raised by the global economic crisis is the degree of dependence of growth in East Asian¹ developing and emerging economies (DEEs) on exports, particularly to the US and the EU. Attention in this respect is often focussed on China as the centre of the East Asian production network and number one exporter, both in the region and globally. Already at the onset of the crisis views differed widely as to whether growth in East Asia would be decoupled from contraction of economic activity in advanced economies. Those who did not see exports playing a key role in East Asia expected not only that growth in the region would continue to surge ahead despite emerging difficulties in advanced economies, but it could also prevent the world economy from falling into recession. For instance, it was argued that “as far as macro growth is concerned the [Chinese] economy is and has always been effectively ‘decoupled’, and China has little to fear from a global demand slowdown” because the “idea that China is an export-led economy” is a myth (Anderson 2007a: 1). A similar view was echoed by *The Economist* (2007), arguing that China’s net exports accounted for about one quarter of its growth in 2007 and that an American downturn was more likely to cause sniffles in China than a heavy cold. Even as the crisis deepened there were talks of reverse coupling, with the rest of the world, notably China, pulling the US forward and preventing it from falling into recession (Bergsten 2008).

In the event the principal channel of transmission of the adverse impact of the crisis to Asian DEEs has been trade. As contraction started to take root in advanced economies, exports in Asia began to fall rapidly from the third quarter of 2008, with year-on-year (y-o-y) declines reaching double digit figures across the region, after growing at similar rates in previous years. This has pulled down growth, hitting particularly hard the leading exporters compared to countries with less impressive export performance, such as Indonesia and the Philippines. China could escape a collapse of growth thanks to a massive fiscal package and aggressive easing of monetary policy. Others including the NIEs and some of the more successful South East Asian exporters, Malaysia and Thailand, have all seen negative growth for the first time for many years despite strong counter-cyclical policy response.²

The sharp drop in exports and growth in Asia has raised questions over whether China and other DEEs linked to the East Asian production network could go back to rapid and sustained export-led growth as the world economy recovers from the crisis. Even before the outbreak of the global crisis there were doubts about the sustainability of China’s growing penetration in the markets of advanced and developing economies.

¹ For the purpose of this study East Asia is defined to include the newly industrialized economies (NIEs; Korea, Taiwan, Singapore and Hong Kong), China and members of the Association of Southeast Asian Nations (ASEAN) but to exclude Japan.

² For a discussion of stimulus packages in East Asia see ESCAP (2009), IMF WEO (Oct 2009) and IMF REOAP (October 2009).

These concerns have increased considerably because of widespread expectations that global economic conditions in coming years are likely to be significantly less favourable than in the boom years of 2002-07. It is generally agreed that a return to “business as usual” would be a recipe to increased instability and deeper global crises, posing a threat to international monetary, trade and payments systems. Avoiding such an outcome would call for, *inter alia*, reduction of global trade imbalances. The US would need to live within its means and shift from consumption-led to export-led growth while China would need to restrain its export push and rely increasingly on domestic consumption.³ The realization that a return to “business as usual” may not be possible in fact underscores the search for a new growth model in East Asia, based on the expansion of domestic and regional markets.

This paper addresses these issues focussing on China and its supplier DEEs in East Asia. It starts with the more analytical question of measurement of dependence on exports and their contribution to growth. It is argued that the conventional growth accounting based on the national income identity does not provide an adequate framework for assessing the contribution of components of demand to growth. The standard exports/GDP ratio overestimates the income (value-added) generated by exports because it ignores the foreign (import) contents of exports, which tend to be particularly high in countries closely linked to international production networks. Nor do net exports (that is exports minus imports) provide a correct measure of dependence of income on exports because all imports are deducted from exports, and imports used for domestic consumption and investment are not accounted for. Consequently, they underestimate the contribution of exports and overestimate the contribution of domestic demand to GDP. Thus, in order to assess the importance of exports in the income generating process, it is necessary to identify direct and indirect import contents of consumption, investment and exports, using input-output linkages.

This discussion is followed by a review of empirical evidence on import contents of components of aggregate demand. For DEEs estimates for domestic demand are not readily available. Much of the work for these countries focuses on import contents of exports. However, studies for several advanced economies reveal certain patterns that can be expected to hold in developing countries as well. First, import contents of both domestic and external components of demand have been rising because of closer economic integration and greater vertical specialization and intra-industry trade. Second, in a large majority of countries import contents of exports are greater than those of domestic consumption and investment. Third, the import content of consumption is almost always lower than that of investment and the import content of government consumption is lower than that of private consumption. Finally, growth accounting based on the adjustment for import intensities of all components of effective demand generally gives a higher contribution of exports to growth than that produced by the conventional accounting based on net exports.

For countries other than China empirical evidence on the import content of exports is limited and pertains to early years of the decade. By contrast there are several studies for China and some of the estimates cover the more recent years. These studies are used alongside some assumptions based on the evidence from advanced

³ However, as argued in Akyüz (2010), a US-China rebalancing alone would not be sufficient to secure global stability and growth.

economies in order to reach estimates for import intensities of consumption, investment and exports in China.

The evidence suggests that in recent years the average import content of Chinese exports has been between 40 and 50 per cent; that is, domestic value-added generated by exports is less than 60 per cent of their gross value. In value-added terms the share of exports in GDP is in the order of 20 per cent. Domestic value-added generated by per unit of processing (assembly) exports is around a quarter of value-added generated by non-processing exports. In non-processing exports much of the domestic value-added is created in sectors supplying inputs for exports, rather than in sectors producing exportables. By contrast processing exports rely very little on inputs from other sectors and an important part of the value-added generated in sectors producing exportables accrue to foreign companies.

The import content of consumption in China is quite low compared to more advanced economies. Around 60 per cent of imports are used, directly and indirectly, for exports, less than 15 per cent for consumption and some 20-25 per cent for investment. Thus, the Chinese economy appears to be significantly open to imports for exports and export-oriented investment, but not for domestic consumption.

Despite high import content of exports, one-third of growth of income in China in the years before the outbreak of the global crisis is estimated to have been due to exports because of their phenomenal growth of 25 per cent per annum. This figure goes up to 40 per cent if spillovers to domestic consumption (the multiplier) are accounted for and to 50 per cent with knock-on effects on domestic investment. These figures are significantly higher than the estimates of some 15 per cent produced by conventional accounting based on net exports.

It is estimated that a 10 percentage-point decline in the growth rate of exports would reduce Chinese GDP growth by at least 2 percentage points, including spillovers to domestic consumption, and by 2.5 percentage points including spillovers to both domestic consumption and investment. The sharp contraction of exports in 2009 resulted in a swing of almost 6 percentage points from 2002-07 in the contribution of exports to growth. Despite massive intervention, this was only partly offset by faster growth of domestic demand so that GDP growth in 2009 is estimated to have remained 2.5-3 percentage points below the 2002-07 average.

A return by China to a trend income growth of some 10 per cent per annum based on exports would require continued large gains in foreign markets. This would be problematic coming on top of existing trade imbalances and prospects of slow growth and high unemployment in major advanced economies. An aggressive export push by China could face stern resistance with attendant consequences for the stability of the international trading system. If, on the other hand, China cuts growth of its exports to a more acceptable level, then, without a fundamental change in the pace and pattern of domestic demand, it may grow by no more than 7 per cent— and even less if growth slowdown gives rise to increased financial difficulties and asset deflation.

When investment grows faster than consumption, firms would need to expand rapidly in foreign markets in order to fully utilize the production capacity thus created and maintain strong growth. China has been able to do this so far. However, if such an

expansion is no longer feasible, the way out is to put consumption ahead of income and investment. In China the share of private consumption in GDP has been constantly falling since the late 1990s, from over 55 per cent to some 36 per cent in the past two years. It is below the share of investment in GDP, which has now been pushed up to 50 per cent by fiscal and monetary policy interventions in response to contraction of exports. For every 10 percentage point decline in the growth rate of exports, consumption would need to grow by at least 5 percentage points faster in order to stabilize growth. Investment also needs to be significantly moderated in order to address the problem of excess capacity in several sectors, aggravated by recent stimulus packages.

Under-consumption in China is due not so much to exceptionally large household savings as a low share of household income in GDP. Much of this income consists of wages because government transfers and investment income are very small. The share of wages in GDP has been constantly falling since the late 1990s and this is perfectly mirrored by the declining share of private consumption. With the continued rise of profits, corporate retentions, including by state-owned enterprises, have come to exceed 20 per cent of GDP – far higher than the rates seen during the earlier industrialization of Japan and the NIEs. Thus, the disparity between consumption and investment and the consequent dependence on foreign markets is a reflection of the imbalance between wages and profits, and between household and corporate incomes. This needs to be rectified if rapid and sustained growth is to be attained based on the domestic market.

Export dependence in most other DEEs participating in the Sino-centric East Asian production network is no less than that in China. Although China has become the largest export market for an increasing number of these countries, an important part of Chinese imports from them is used for inputs into exports of consumer goods to the US and the EU. They are thus vulnerable to slower expansion of markets in the US and Europe not only directly, but also through China.

Since Chinese exports are much more import intensive than its domestic consumption, a shift by China from export-led growth to consumption-led growth would imply significantly reduced imports from other East Asian DEEs. In other words, at its current pattern of domestic spending, China is not a good substitute for the US and the EU markets for East Asian DEEs. It cannot replace the US even if it maintained GDP growth of some 10 per cent based on domestic consumption rather than exports; its GDP is about one-third of the US, the share of households in GDP is much smaller, they save a much higher proportion of disposable income and the import content of household consumption is much lower than the US. To become a regional locomotive, China would need to raise not only domestic consumption, but also consumption of goods from the DEEs in the region. It can also play an important role in accelerating the growth of regional markets and promoting intra-regional trade by providing external financing to several Asian DEEs facing balance-of-payments constraints.

II. MEASUREMENT OF CONTRIBUTION OF EXPORTS TO ECONOMIC GROWTH

The conventional approach to the measurement of contribution of exports to economic growth relies on demand-side growth-accounting based on *ex-post* national income identity. This involves decomposing income growth into its constituent parts, using observed growth rates of each component of aggregate demand and their shares in the total.⁴ The starting point is the national income identity:

$$(1) \quad Y = C + I + X - M$$

where C and I include both public and private consumption and investment, respectively. In *ex-post* growth terms:

$$(2) \quad g_y = g_c (C/Y) + g_i (I/Y) + g_x (X/Y) - g_m (M/Y)$$

The sum total of the last two items is defined as the contribution of net exports to GDP growth. Growth is considered to be driven by domestic demand if the contribution of consumption plus investment exceeds that of net exports. The latter can be positive even when there is a trade deficit provided that exports are growing fast enough relative to imports.

This framework cannot correctly distinguish between the contributions of domestic demand and exports to growth and help assess the vulnerability of an economy to export shocks because it fails to link imports to components of aggregate demand. It underestimates the contribution of exports and overestimates the contribution of domestic demand to growth because all imports are deducted from exports even though they are used, in part, for domestic consumption and investment. What the term $[g_x (X/Y) - g_m (M/Y)]$ can at most describe is *ex post* contribution of *trade* to growth. On the other hand, the term $g_x (X/Y)$ overestimates the contribution of exports to growth because it neglects the import (foreign value-added) contents of exports. In a correct accounting, income (value-added) generated by domestic demand would be lower by the import contents of consumption and investment, and income generated by exports would be lower by its own import content, not by the amount of total imports.

Let α , β and δ denote import intensities of consumption, investment and exports, respectively so that:

$$(3) \quad M = \alpha C + \beta I + \delta X$$

where the terms on the right hand side of (3) give imports that go directly and indirectly into consumption, investment and exports, respectively. In a special case where import intensities are all equal ($\alpha = \beta = \delta$), they will be given by $m/(1+m)$ where $m = M/Y$.

⁴ For an application, see ADB (2005: chap. 1).

The import content of consumption has two parts; imported final consumer goods and imported inputs into domestic production of consumables. Similarly the import content of investment includes imported capital goods plus imported intermediate inputs into domestic investment. For exports, a distinction can be made between domestically produced exports and re-exports. The latter is defined as export of imported goods after no (or virtually no) further domestic processing and hence emphasizes the role of the economy as a distributor or trader, rather than as a producer. But the distinction is not always clear-cut and there are no generally accepted criteria for re-exports even though a number of countries report them as a different category of exports based on their own definitions.⁵

Using (3) in (1) will give, in growth terms:

$$(4) \quad g_y = g_c (1 - \alpha) (C/Y) + g_i (1 - \beta) (I/Y) + g_x (1 - \delta) (X/Y)$$

$(1 - \delta)X$ gives exports measured in value-added terms (or value-added exports, VAX). It includes value-added generated in sectors producing exportables (that is, direct value-added) and in sectors supplying inputs to exports (indirect value-added). Similarly $(1 - \alpha)C$ and $(1 - \beta)I$ are total domestic value-added generated for consumption and investment, respectively.

Import intensities are susceptible to change over time along with changes in consumer preferences, technology and the structure of production. Over shorter periods, exchange rate fluctuations can lead to sizeable changes in import intensities and hence the share of imports in GDP by altering the relative demand for foreign and domestically produced goods. On the other hand, when import intensities of different components of demand are different, changes in the composition of aggregate demand will alter total imports without any change in the level of income.

While improving significantly over the traditional net-exports accounting, the decomposition in (4) does not provide accurate information about the contribution of exports to growth because it ignores the impact of exports on domestic demand. To account for all such interdependencies, including the impact of domestic demand, notably investment, on exports, one would no doubt need a fully fledged macroeconomic model, allowing for lags in the interactions between domestic components of demand with imports and exports.⁶ For the issue at hand here attention will only focus on the multiplier. A higher level of exports raises domestic consumption through its impact on income, setting the multiplier to work. In this process imports also rise depending on the import intensity of consumption, dampening the overall impact of export growth on income.

Let: $C = c Y$ where c is the average propensity to consume. Then the overall contribution of exports to GDP growth will be given by:

⁵ In the Netherlands a good imported under a particular six-digit code is included among re-exports if it is exported under the same code. For a discussion of definition, identification and measurement of re-exports and empirical evidence see, Roos (2006) and Mellens *et al.* (2007).

⁶ For a discussion of two-way relationship between investment and exports, or the investment– exports nexus, see Akyüz (2009).

$$(5) \quad g_{y/x} = g_x [(1 - \delta) (X/Y)] \psi \quad \text{where} \quad \psi = 1 / [1 - c (1 - \alpha)]$$

that is, the import-adjusted multiplier. Equation (5) incorporates both the indirect impact of import-adjusted exports on income and its indirect impact through consumption.⁷

⁷ Agarwala (2009) is one of the few studies that account for the multiplier effect in estimating the contribution of exports to growth in India, assuming that import content of exports is at most equal to the average of imports in total expenditures. There is no readily available evidence for India to assess if this assumption is valid.

III. EMPIRICAL EVIDENCE

The search for export-led growth, trade liberalization and rapid spread of international production networks over the past two decades have resulted in significant increases in import contents of production and consumption almost everywhere, but most visibly in DEEs. In particular, the increased use of imported inputs for exports has become a key feature of what is known as vertical specialization whereby production sequence of a good involves at least two countries and the good-in-process crosses at least two borders before reaching the final user (Hummels *et al.* 2001).

Greater participation of DEEs in international production networks in manufactures has generated not only a rapid growth in their exports, but also in imports as inputs into their production. Consequently, increased manufactured exports of DEEs have not always been matched by commensurate increases in domestic manufacturing value-added (UNCTAD 2002: 77-81; and 2003: 99-102). From the late 1980s onwards, total manufacturing exports increasingly exceeded total manufacturing value-added in several DEEs closely participating in international production networks, such as Hong Kong, Malaysia, Mexico and Singapore, but the opposite was true in G7 countries and some late-industrializers such as Korea. In fact some of these DEEs, including Hong Kong and Mexico, have seen their shares in world manufacturing exports rising while their shares in world manufacturing value-added were falling.

Rapidly increasing re-exporting activities, as well as rising import contents of domestically produced exports, is a main reason why exports account for an increasingly high share of GDP in many countries. A recent study has reported that re-exports have grown faster than domestically produced exports in all the ten economies examined (Mellens *et al.* 2007). Re-exports are the main reason why in several entrepot economies exports exceed GDP. They account for more than 50 per cent of total exports in Singapore and around 95 per cent of total exports in Hong Kong. But re-exporting is not confined to small entrepot economies operating as regional or global distributors of certain ITC products. According to the same study, more than half of Dutch manufacturing exports consist of re-exports. The emergence of China is found to have contributed to the role of the Netherlands as the European distribution centre whereby two-thirds of Dutch imports from China are re-exported (Suyker 2007). While Germany is the largest market for Dutch re-exports, about 15 per cent of total exports of Germany consist of re-exports.

In DEEs recent increases in imports have not only been driven by growth of production facilities linked to global networks or re-exports. Rapid liberalization of trade and foreign investment in the past two decades has also resulted in increased import intensity of goods and services produced to supply domestic markets. In general, however, import-intensity of exports tends to be much higher than that of domestic demand not only because export sectors are increasingly linked to global production chains, but also because non-tradeable services account for a large proportion of private consumption. For the same reason the import intensity of investment also exceeds that of domestic consumption, particularly in countries with underdeveloped capital goods industries.

III.1 Imports intensities of components of aggregate demand: Evidence from advanced economies

The estimation of import intensities requires allocation of imports to all expenditure categories on the basis of detailed input-output tables.⁸ There are several studies for advanced economies, often drawing on the OECD input-output database. Statistics and other government offices in a few countries, including the Netherlands and more recently Canada, France and Denmark have been using input-output tables to estimate contributions of domestic demand and exports to growth based on adjustments for import-contents.

Kranendonk and Verbruggen (2008a, 2008b) of the Netherlands Bureau for Economic Policy Analysis (CPB) provide estimates for import intensities for a number of eurozone economies and the US, using the cumulated production structure matrices obtained by eliminating domestic intermediary demand in input-output tables. These estimates are carried out for four categories of effective demand; private consumption, government consumption, investment and exports. Two sets of estimates are provided. First, average import intensities which show the allocation of total imports in any given year among these four components of demand. Second, marginal import intensities which provide estimates, under certain assumptions, for what proportions of changes in the components of demand between two years have been met by imports.⁹

Their findings are summarized in Table 1. A number of features are worth noting. First, for the eurozone countries taken together, the import intensity of exports is greater than the import intensities of all components of domestic demand. This is also true for almost all countries individually. Second, for this sample of countries, exports still account, directly or indirectly, for less than half of total imports (48 per cent).¹⁰ Third, investment is more import-intensive than private consumption, but since the latter accounts for the chunk of domestic demand (some 60 per cent of GDP), about one-third of total imports go, directly and indirectly, into private consumption. Fourth, import intensity of public consumption is lower than import intensities of other components of demand; about one fifth of import intensity of exports and half of import intensity of private consumption. This is also true for the individual countries in the sample.

⁸ It should be noted that estimated import intensities may not be reliable when the input-output data are not sufficiently detailed; see, Hummels *et al.* (2001) and NRC (2006).

⁹ Marginal import intensities can be negative. This happens due to import substitutions— that is, imports catering for demand in previous years may be replaced by domestic production. They can also exceed unity, as may happen in the process of de-industrialization when domestic production is replaced by imports.

¹⁰ However, in countries where re-exporting is important, such as Belgium and the Netherlands, exports account for about two-thirds of total imports.

Table 1: Imports intensities and contributions to growth: Europe 2005 (Per cent)

	Priv. Cons.	Gov. Cons.	Investment	Exports	Total
Average import intensity	20	9	31	47	28 ^b
Import shares	31	5	17	48	100
Contribution to growth:					
Traditional method	0.7	0.3	0.6	– 0.3	1.3
Import-adjusted method	0.4	0.2	0.3	0.4	1.3
Marginal import intensity 2000-05	39	16	95	62	49 ^b
<i>Memo: US 2003-07</i>					
Marginal import intensity	23	17	40	16	24 ^b

Source: Kranendonk and Verbruggen (2008a and 2008 b)

a. Includes Belgium, France, Germany, Italy, Netherlands and Spain

b. Imports as a proportion of total demand

Marginal import intensities are much lower in the US for all components of demand than in Europe. The US is particularly notable for its low import intensity of exports – it is lower than not only the import intensity of exports in Europe but also other components of demand in the US. For most European countries and for the region as a whole marginal import intensities are higher than average intensities for all components of demand, domestic and external. A growing proportion of increases in exports and domestic demand are met by imports due to increased foreign penetration and intra-industry trade based on vertical specialization. These proportions are particularly high for investment. The same is also true for the US.

Differences in the contribution to growth between the conventional accounting based on net-exports and the import-adjusted method are striking. In the conventional accounting the contribution of exports to growth in the sample of European countries was negative in 2005, while the import-adjusted method attributes almost one-third of GDP growth to exports in that year. Accordingly, the contributions of domestic consumption and investment to growth are much lower than those estimated by the conventional accounting. For Belgium, France and Spain according to the conventional method the contribution of exports to growth is negative for most years while the import-adjusted method shows positive contributions. This is also true for the US where import-adjusted estimates suggest that as much as 20 per cent of GDP growth during 2004-07 was due to exports.

Table 2 summarizes another set of estimates for average import contents of exports, consumption and gross fixed capital formation (GFCF) for some advanced economies with comparable input-output data. Here too in all countries the import content of consumption is lower than that of both exports and GFCF. There are large increases between 1995 and 2005 in average import intensities of all components of demand in Belgium and, particularly, in Germany. Increases in import content of exports can partly be explained by growing re-exporting. However, they also reflect deepening vertical specialization. In Germany, for instance, the share of foreign value-added in domestically produced exports is estimated to have increased from some 18 per cent in 1995 to 23.3 per cent in 2005 (Loschky and Ritter 2006).

Table 2: Import contents for selected economies (Per cent)

		Exports	Consumption	GFCF
Australia	1996-97	16.0	13.3	25.0
Belgium	1995	58.3	20.1	41.7
	2005 ^a	62.0	32.0	48.0
Denmark	1996	41.8	13.9	25.2
Finland	1995	29.6	16.8	32.8
Germany	1995	29.2	12.9	17.3
	2005 ^a	42.0	22.0	33.0
New Zealand	1995-96	20.4	18.7	36.7
Norway	1997	19.5	20.3	43.0
United Kingdom	1995	23.9	19.0	32.3

Source: Claus and Li (2003)

a. From Kranendonk and Verbruggen (2008a)

These differences in import intensities of different components of demand imply that imports can rise or fall significantly when the composition of aggregate demand changes without any change in its level. A given level of aggregate demand associated with higher private consumption and lower public consumption will produce higher imports than the same level of demand with lower private consumption and higher public consumption. Even though there are no readily available data on respective import intensities of public and private investment, the latter is generally more import intensive than the former. Thus, a shift in the composition of domestic demand from

private to public spending could result in a significant drop in imports even when aggregate demand and income remain unchanged. This appears to be a main reason why during the current crisis imports contracted relative to income in several countries where public spending has been increased in order to offset the decline in private spending and stabilize economic activity.

At the global level one country's imports are another's exports and, as seen above, exports have much higher import contents than both public and private spending almost everywhere. When country A (say, the US) faces a decline in private spending, its imports will fall even when it manages to stabilize aggregate demand and income by raising public spending. This will bring down country B's (e.g. China's) exports. An offsetting fiscal expansion in country B may, in turn, stabilize its income, but it cannot prevent a decline in imports because public spending is less import-intensive than exports. Under such circumstances, international trade will shrink faster than income, as seen during the recent global crisis.

III.2 Domestic and foreign contents of exports in East Asian DEEs

Estimates of import intensities of components of domestic demand based on input-output data are not available for DEEs. Much of the work for DEEs has concentrated on vertical specialization and import contents of exports. One of the first studies in this area (Hummels *et al.* 2001) included a few DEEs, namely Korea, Taiwan and Mexico, alongside 11 advanced economies, using the OECD input-output database and national input-output tables. For this sample of countries the average share of foreign value-added in exports was found to be around 21 per cent in 1990, rising to 23 per cent in 1995. Estimates were then extended to world trade as a whole under certain assumptions for the countries lacking comparable input-output data: for East Asian DEEs – China, Hong Kong, Indonesia, Malaysia, Singapore and Thailand – the import content of exports (excluding transit shipment) was assumed to be 25 per cent in 1970 and 35 per cent in 1995. For the world economy as a whole the foreign value-added content of exports, excluding transit shipments or re-exports, is estimated to have increased from 20 per cent in 1970 to about 30 per cent in 1995. For Korea and Taiwan import intensities of exports for the mid-1990s were found to be around 30 per cent and 40 per cent, respectively, with little increases from previous decades.

Similar estimates of domestic and foreign contents of exports are provided for a number of advanced and developing economies by Miroudot and Ragoussis (2009) and Johnson and Noguera (2009). The findings of the latter study for selected Asian economies are summarized in Table 3.¹¹ The figures exclude re-exports. It is notable that the domestic value-added contents of exports of Indonesia, Malaysia and Thailand are similar to or higher than those of economies at a higher level of industrialization – Korea and Taiwan. This is mainly due to a high share of commodities in the total exports of the former economies, which contain higher domestic value-added than

¹¹ Johnson and Noguera (2009) provide estimates based on the same method as in Hummels *et al.* (2001) and a variant of that method which produces slightly different estimates. The numbers in Table 2 are the averages of the two.

manufactured exports.¹² In China too the domestic value-added content of exports is higher than that of Korea and Taiwan but, as discussed presently, this is no longer the case when estimates are adjusted for export processing.

Table 3: Domestic content of Asian exports: 2001 (Per cent)

Japan	88	Taiwan	64
India	87	Malaysia	63
China	80 (66 ^a)	Thailand	60
Indonesia	79	Vietnam	56
Hong Kong	76	Philippines	42
Korea	65	Singapore	35

Source: Johnson and Noguera (2009)

a. Adjusted for processing trade

Estimates given by several studies for foreign and domestic contents of Chinese exports differ quite significantly according to the data and the method used. It is generally agreed that the vertical specialization framework developed by Hummels *et al.* (2001) is not appropriate for countries that engage actively in processing exports such as China, Mexico and Vietnam. In such cases the assumption that intensity in the use of imported inputs is the same between non-processing and processing exports or between production for domestic sales and production for exports would result in an underestimation of import contents of exports. It is thus found necessary to generate and use separate input-output tables for export processing sectors, rather than relying on the unified official input-output table.¹³

¹² In a sample of 40 countries, the average import content of agricultural and mining exports in 2005 was less than 20 per cent compared to more than 30 per cent for most manufactured exports; see, Miroudot and Ragoussis (2009). Johnson and Noguera (2009) also find that value-added to export ratios are substantially higher in agriculture, natural resource, and service sectors than in manufacturing. See also Hummels *et al.* (2001: Table 6) for a similar conclusion for the earlier period.

¹³ In China processing exports refer to a special category of goods produced by assembling and/or processing intermediate inputs that are exempted from tariffs because the final products are sold only in foreign markets. Chen *et al.* (2004) was the first study using separate input-output tables for non-processing and processing exports in China. For a contrast and comparison of the two methods and estimates based on them, see Koopman *et al.* (2008) and Dean *et al.* (2008).

Table 4: Import intensity of Chinese exports (Per cent)

Study	Year	Single IO ^a	Separate IO ^b
Chen <i>et al.</i> (2004)	1995	-	45.5
Koopman <i>et al.</i> (2008)	1997	17.6	47.7
Dean <i>et al.</i> (2008)	1997	17.9	47.7
Johnson and Noguera (2009)	2001	20.0	34.0
Ping (2005)	2002	21.0	-
Koopman <i>et al.</i> (2008)	2002	25.1	46.1
Dean <i>et al.</i> (2008)	2002	25.4	46.1
Chen <i>et al.</i> (2008)	2002	-	53.4
Miroudot and Ragoussis (2009)	2005	30.0	-
Koopman <i>et al.</i> (2008)	2006	26.3	49.3

a: Using single Input-Output table for domestically produced and processing exports.

b: Using separate Input-Output tables for domestically produced and processing exports

Table 4 contains estimates for import contents of Chinese exports reached by various studies using single and/or separate input-output tables for non-processing and processing exports. The average import content of exports is much higher when separate input-output tables are used. Processing exports accounted for about 55-60 per cent of total Chinese exports in the first half of this decade (Koopman *et al.* 2008: Table 1; and Feenstra and Hong 2007: Table 2). Their import content is several times that of non-processing exports; in 2002 it was around 75 per cent against 11 per cent.¹⁴ Import content is particularly high – over 80 per cent – in sectors processing high-end manufactures such as electronics compared to low-skill exports. Foreign firms are active in export processing and have particularly higher import content in their exports than do domestic firms. Wholly foreign owned enterprises exhibit the lowest share of domestic value-added, followed by joint venture companies (Koopman *et al.* 2008: Table 6).

¹⁴ See Koopman *et al.* (2008: Table 4). Chen *et al.* (2008) estimate, for the same year, similar import content for processing exports but a higher figure (37 per cent) for non-processing exports.

On some accounts, domestic value-added contents of Chinese exports have been rising as a result of growing supply capabilities and technological upgrading. The rising trade surplus brought about by a slowdown in imports relative to exports after 2004 is often interpreted as a sign of weakening of the link between exports and imports, and this is supported by some econometric evidence (Cui and Syed 2007). However, studies based on input-output data, which cover the period from mid-1990s to 2006, do not generally show a declining trend in the foreign content of Chinese exports.¹⁵ This may have changed in more recent years for two main reasons. First, the share of processing exports has continued to fall and was below 50 per cent of total exports in 2008 (Li&Fung 2009). This should bring a decline in the average import intensity of Chinese exports since non-processing exports have higher domestic value-added contents. Second, in processing exports China appears to have been shifting from simple assembly of foreign parts and components towards operations with greater domestic inputs, thereby raising their domestic value-added contents (Cui 2007).

The estimates made for the first half of the 2000s show that the average foreign value-added content of Chinese exports was between 40 and 50 per cent. A very large proportion of foreign content of exports consisted of imported parts and components directly used in sectors producing exportables. This proportion was particularly high in export processing sectors while in non-processing exports the shares of direct and indirect import contents were similar. Close to two-thirds of domestic value-added contents of non-processing exports were generated in other sectors supplying inputs while for processing exports direct and indirect value-added contents were broadly equal.

Chinese exports to the US are found to have greater import contents than its exports to the rest of the world in large part because a very high proportion of exports to the US – about 78 per cent in 2002 – are processing exports. In 2002 the foreign value-added content of exports to the US was around 63 per cent compared to less than 50 per cent for total Chinese exports.¹⁶ By contrast US exports to China have very high domestic value-added content (around 87 per cent in the same year) and very low foreign value-added content (13 per cent). As a result, while in gross value terms the bilateral trade surplus of China with the US was estimated to be some \$172 billion in 2005, in value-added terms this figure comes down to less than \$40 billion. In other words, China's exports to the US contain large amounts of value-added generated elsewhere, including in its Asian trading partners and even the US itself (Lau *et al.* 2006).

A relatively important part of the domestic value-added generated by Chinese exports accrue to foreign firms. This is particularly the case for processing exports where foreign firms are dominant. It is estimated that of the total domestic value-added generated by Chinese exports in 2002 to the US, around two-thirds went to capital income, some 18 per cent to labour and 14 per cent to indirect taxes. About 60 per cent

¹⁵ For changes between the mid-1990s and early 2000s, see Chen *et al.* (2008: 11-12). Preliminary estimates for 2006 by Koopman *et al.* (2008), however, show a steep decline in domestic value-added generated by processing exports, but little change in that generated by non-processing exports.

¹⁶ Lau *et al.* (2006). According to Dean *et al.* (2008), foreign import content of Chinese exports to the US was 55 per cent compared to the average foreign content of its total exports of 46 per cent.

of these exports were by foreign firms, including firms from the US. Even if it is assumed that such firms shared only in the direct capital income, it can be estimated that an additional 7 per cent of the value of total Chinese exports to the US went to foreign firms. As a result, income left in China was no more than 30 per cent of total value of exports to the US.

IV. TO WHAT EXTENT IS GROWTH IN CHINA EXPORT-LED?

IV.1 Recent experience

The evidence examined above shows that Chinese exports have relatively high import contents. On average, domestic value-added generated by exports is not much more than half of their gross value and the rest are accounted for by foreign value-added, mainly parts and components and other intermediate inputs imported from East Asian DEEs and Japan.

Table 5: Growth of Real GDP and its Components in China (Per cent)

	GDP	Consumption	Gross Capital Formation	Exports	Imports
2002	9.1	7.4	13.2	29.4	27.4
2003	10.0	6.6	17.2	26.8	24.9
2004	10.1	7.1	13.4	28.4	22.7
2005	10.4	7.3	9.0	24.3	11.4
2006	11.6	8.4	11.1	23.8	15.9
2007	13.0	10.1	11.4	19.9	14.0
2008	9.6	8.8	10.2	8.6	5.1
2009	8.7	9.7	18.3	-10.6	3.9

Source: WB CQU (various issues).

However, even in value-added terms the share of Chinese exports in GDP (that is, the VAX/GDP ratio) is very high, in the order of 18-22 per cent, of which 7-9 percentage points consist of direct value-added generated in sectors producing exportables. This is much higher than what would be expected for an economy of its

size; it is higher than even the conventionally measured X/GDP ratio in the US, Japan and Brazil. The main reason is the phenomenal growth of its exports since the beginning of the decade, at a rate of some 25 per cent per annum, more than three times the domestic consumption and twice the domestic investment, which took the X/GDP ratio to 36 per cent before the outbreak of the global crisis in 2008 (Tables 5 and 6).

Table 6: Exports, imports and income in China (Per cent)

	2002	2006	2007
	-----	-----	-----
X/GDP	22.4	36.5	36.0
VAX/GDP	12.1	18.5	18.3
<i>Direct</i>	4.5	7.0	7.0
<i>Indirect</i>	7.6	11.5	11.3
TB/GDP	3.0	8.2	9.3
M/GDP	20.3	29.8	28.3
M _x /M	50.7	60.2	62.1
IG/M	72.6	74.4	75.2

Source: IMF IFS, UN Comtrade and Koopman *et al.* (2008)

VAX: Exports measured in value-added. TB: Trade Balance.

M_x : Imports used for exports. IG: Imports of intermediate goods.

Table 6 uses the estimates given by Koopman *et al.* (2008) in calculating VAX/GDP ratios and direct and indirect value-added contents of exports as a proportion of GDP.¹⁷ The increase in VAX/GDP between 2002 and 2007 reflects mainly the increased share of exports in GDP as conventionally measured rather than declines in their foreign value-added contents. The VAX/GDP ratio exceeds by a wide margin the ratio of trade surplus (TB) to GDP because not all imports are used for producing exportables. Some 60 per cent of total imports and over 80 per cent of intermediate goods imports are used, directly and indirectly, for exports and the rest for domestic consumption and investment.

According to some estimates the contribution of value-added exports to GDP in China is much smaller than the figures given in Table 6. Anderson (2007a) puts it at only 7.7 per cent – that is, less than half of the VAX/GDP ratio in Table 6. However,

¹⁷ In Table 6 estimates for foreign and domestic contents for 2006 are also used for calculating the VAX ratio for 2007.

this estimate is reached by deducting from exports not only “the associated import content” in sectors producing exportables but also “input purchases from other sectors.” It thus excludes the indirect domestic value-added contents of exports which, as noted, exceed direct domestic value-added by a large margin. Indeed, it comes very close to the share of direct value-added content of exports in GDP estimated on the basis of input-output tables. More importantly, it is below the ratio of trade surplus to GDP. Thus, even if it is assumed that all imports are used for exports and none for domestic consumption and investment, the value-added generated would still be higher than 7.7 per cent of GDP.¹⁸

Table 7 compares the estimates for the contribution of exports to growth in China over 2004-09 made according to conventional accounting in equation (2) based on net exports with those based on the adjustment of exports and domestic demand for their import contents. The latter estimates take the import content of exports to be 50 per cent. This is on the high end of various estimates based on input-output data discussed above, particularly for the more recent years. Therefore, the figures in the last column of Table 7 should be interpreted as the minimum contributions of exports to growth. Even then they exceed the estimates based on net exports by a large margin for the years preceding the crisis. According to conventional estimates, from 2004 until 2008 net exports accounted for, on average, no more than 15 per cent of growth while the average contribution of exports reaches one-third when import contents of exports and domestic demand are both taken into account. Thus, the dependence of growth in China on exports has been quite significant despite a very high import content of exports.

Figures in Table 7 do not include the multiplier effect of exports on consumption and income. To account for this, it is necessary to estimate the import content of consumption (α in equation 5). This is not directly available but on some reasonable assumptions it can be estimated to be less than 8 per cent.¹⁹ This implies that during 2004-07, over 60 per cent of total imports were used, directly and indirectly, for exports and under 15 per cent for domestic consumption. Even for a lower import content of exports, say $\delta=0.40$, the import intensity of domestic consumption would not be much higher – around 10 per cent – and imports used for domestic consumption and investment together would barely reach 50 per cent of the total. These figures are quite low compared to those in advanced economies in Tables 1 and 2, particularly since the share of goods in consumption is higher and that of services is lower in China and goods have higher import intensity than services. They suggest that the Chinese

¹⁸ These considerations are also valid for the findings of another study, He and Zhang (2008), according to which the domestic value-added content of exports was 15 per cent in 2002. This would imply a VAX/GDP ratio of around 3 per cent. This is more or less equal to the trade-balance ratio in that year (see Table 6), implying that consumption and investment use little or no imports. The study uses the methodology developed by Koopman *et al.* (2008) for separation of imports for processing and non-processing exports and the data from the same 2002 input-output table, but does not explain why it reaches significantly different estimates.

¹⁹ Once the import content of exports is known, the import intensity of domestic demand (η) can be obtained from $Y = D(1 - \eta) + X(1 - \delta)$ where D is aggregate domestic demand ($C+I$). For $\delta=0.50$ it is around 11 per cent. We assume, on the basis of the estimates for several advanced economies discussed above, that the import intensity of consumption (α) is no more than half of that of investment (β). For $\delta=0.50$, $\eta=0.11$ and $\alpha=\beta/2$, the import intensity of consumption will come to less than 8 per cent.

economy remains pretty closed to imports except for exports and export-oriented investment.

Table 7: Contributions of domestic demand and exports to growth in China
(Percentage points)

	Conventional			Import-Adjusted	
	GDP	Domestic Demand	Net Exports	Domestic Demand	Exports
2004	10.1	9.6	0.5	6.3	3.8
2005	10.4	8.1	2.3	6.7	3.7
2006	11.6	9.8	1.8	7.5	4.1
2007	13.0	10.7	2.3	9.4	3.6
2008	9.6	8.8	0.8	8.0	1.6
2009	8.7	12.7	-3.9	10.6	-1.9

Source: Conventional Accounting: for 2004-07 from ADB (2009a) and for 2009 from WB CQU (March 2010).

With these values of import-intensity of consumption, the import-adjusted multiplier (ψ in equation 5)²⁰ would be between 1.5 and 1.6, implying that around 50 per cent of GDP growth before the outbreak of the crisis was due to exports, including through its impact on consumption. However, there are reasons to expect a lower multiplier from incomes earned in export sectors than the average for the economy as a whole. As noted above, some two-thirds of value-added in export sectors accrue to gross profits and less than one-fifth goes to wages. The share of wages in income in export sectors is much lower and that of profits much higher than in the economy as a whole (see Chart 1). Since the propensity to consume from wages is significantly higher than the propensity to consume from profits and since profits in export sectors partly go to foreign firms, income earned in these sectors can be expected to generate proportionately less consumption than income earned in the rest of the economy. Consequently, the multiplier would be smaller. However, even if one were to apply half the average consumption ratio, it would still be around 1.2, implying that about 40 per cent of growth before the crisis was due to exports.

According to these estimates, in China a 10 percent growth of exports would generate at least 2 per cent growth in GDP, including through its impact on domestic

²⁰ Here, the share of private consumption in GDP rather than total consumption is used in estimating the import-adjusted multiplier.

consumption. If account is taken of the impact on investment, this figure would be higher. An econometric study taking into account all spillovers to domestic demand, including the knock-on effect on investment, puts it at 2.5 per cent (Cui *et al.* 2009). A similar figure is suggested by income multipliers estimated by ESCAP on the basis of the Oxford Economic Forecasting model.²¹ Thus, if spillovers from exports to both consumption and investment are accounted for, it would not be an exaggeration to conclude that around 50 per cent of Chinese growth during 2004-07 came from exports.

IV.2 Chinese vulnerability to a slowdown in exports

These findings suggest that the Chinese economy is highly vulnerable to export shocks, as seen during the recent downturn in the world economy. The growth rate of Chinese exports and their contribution to GDP growth declined sharply in 2008 before becoming negative in 2009 (Table 7). There was a swing of some 6 percentage points in the contribution of exports to growth in 2009 from 2004-07, even without accounting for spillovers to domestic demand. This is only partly offset by faster growth of domestic demand. Despite a massive fiscal package of some \$600 billion or 15 per cent of GDP and aggressive monetary easing and rapid credit expansion, GDP growth in 2009 is estimated to have remained 2.5-3 percentage points below the 2004-07 average.

From the beginning of the decade until the global crisis in 2008, Chinese investment went ahead of consumption and the demand gap was filled by rapidly growing exports. The share of private consumption in GDP fell from over 50 per cent in the 1990s to around 36 per cent on the eve of the crisis while that of investment rose to 45 per cent (Table 5 and Chart 1).²² The recent stimulus package has pushed the investment rate further, to 50 per cent of GDP, and aggravated the problem of excess capacity that had pervaded several sectors and increased the dependence of growth on exports. A very large proportion of the fiscal package has been allocated to investment in infrastructure while less than 20 per cent to social spending (NBSC 2008). Policies designed to revive real estate demand and an unprecedented growth of mortgage lending to households have created a bubble in the property market with real estate investment growing by close to 40 per cent (Wolfe and Ziemba 2009a). While private consumption held up thanks to several incentives, particularly for car purchases, it did not provide much impetus to offset the sharp decline in exports. The increase in investment is estimated to have contributed between 80 and 90 per cent of growth in 2009 (Wolfe and Ziemba 2009b; Ho-Fung 2009).

As the impact of the stimulus package fades away, capacity utilization and growth will again depend on a rapid expansion of exports, since the share of consumption is not expected to register a significant increase. Chinese exports expanded at double digit rates at the end of 2009 but slowed down in early 2010,

²¹ The export multiplier shows that every \$1 loss of exports in China would cut GDP by 66 cents. Using the average ratio of exports to GDP over 2004-07, this would imply that a 10 per cent growth in exports would generate about 2.3 per cent growth in GDP, including spillovers to domestic demand.

²² On the evolution of investment and consumption, see World Bank Beijing Office (various issues) and Aziz and Dunaway (2007).

leading to a trade deficit for the first time for many years. Should they fail to resume their strong expansion, growth in 2010 may not reach its 2009 level.

Can China go back to export-led growth over the medium term as the world economy recovers from the current crisis? In the past decade China's exports rose twice as fast as world trade and its share in world merchandise trade doubled, overtaking the US and, more recently, Germany to become number one exporter. A return to trend growth of some 10 per cent per annum based on exports would mean continued increases in its penetration of markets abroad and its share in world trade. If growth in advanced economies which constitute the main markets of China remain sluggish, as suggested by most medium-term projections, the required increase in China's share in world markets will be even greater.

A return to "business as usual" with the US continuing to consume beyond its means and absorbing Chinese exports by issuing growing amounts of dollar liabilities is not a sustainable option – it is a recipe for deeper international monetary and financial instability. Rather, the US needs to live within its means and shift from consumption-led to export-led growth, as it now appears to be determined to do (Akyüz 2010). Under these conditions, an aggressive export push by China in the markets of advanced economies or other developing countries is likely to meet strong resistance, creating conflicts in the trading system.²³ Indeed, China has already encountered reactions not only from the US and the EU, but also some DEEs including India and Indonesia. If, on the other hand, it cuts the rate of expansion of its exports to a more acceptable level, say to 10 per cent, then, without a fundamental change in the pace and pattern of domestic demand, its growth may barely reach 7 per cent.²⁴ Growth may drop a lot more if the credit-driven investment bubble bursts, exposing bad loans and giving rise to difficulties in overstretched banks and, eventually, a financial crisis.²⁵

IV.3 The way out

A solution to this dilemma could be to lower the foreign content of exports so as to enhance their contribution to growth. This would require technological upgrading and substitution of high-tech imported parts and components with domestic production and a shift from processing to non-processing exports. Such a transformation has been taking place in recent years, but there has been no significant decline in the average import content of exports, possibly because of increased vertical specialization in non-

²³ In a scenario by Guo and N'Diaye (2009) to achieve a growth of 8.5 per cent per annum over 2011-20, Chinese real exports would need to grow by 14.5 per cent per annum, more than twice the projected growth in world trade volume, and its current account surplus would reach 15 per cent of GDP. Its share in world exports would rise to 15 per cent, requiring large gains in markets for steel, shipbuilding and machine tools. In the view of these authors the main impediment to such a growth path would be the difficulties in lowering prices to the extent needed for gaining market shares, rather than problems associated with growing trade imbalances.

²⁴ Even 10 per cent real export growth is well above the 6.4 per cent world trade volume growth assumed in the IMF Medium-Term Baseline Scenario – IMF WEO (October 2009).

²⁵ Before the outbreak of the crisis the bursting of the asset (property and stock) bubbles was expected to reduce growth in China by around 2 percentage points; see Chancellor (2008).

processing exports. Indeed such a process would take a long time to have its effects felt on domestic contents of exports. Marginal declines in import contents cannot offset a sharp deceleration in the pace of exports so as to sustain rapid growth. Besides, such a process would imply continued growth of Chinese trade surplus, thereby aggravating global imbalances.

If the aim is to maintain pre-crisis growth rates of 10 per cent or more, the solution is naturally to raise domestic consumption much faster than has been the case so far. The estimates above suggest that for every 10 percentage points decline in export growth, private consumption would need to expand by at least an additional 5 percentage points in order to keep growth unchanged.²⁶ This means that if exports keep pace with income, consumption would need to grow faster than GDP and investment slower. Thus, returning to a path of some 10 per cent growth will require reversing the downward trend in the share of private consumption and the upward trend in the share of investment in GDP.

The coexistence of a growing current account surplus with an exceptionally high rate of investment is a clear symptom of under-consumption. Contrary to widely held belief, however, the main reason is not excessive household savings. They are no doubt high, but not always higher than those in other DEEs. In the past few years they have remained around 20 per cent of GDP, broadly the same as household savings in Malaysia in the 1980s and in India in recent years. As a proportion of household disposable income, they are in the order of 28 per cent compared to 32 per cent in India. However, at more than 50 per cent of GDP, the Chinese national savings rate exceeds that of India by a large margin because of significantly higher corporate savings or profit retentions – over 20 per cent of GDP compared to 10 per cent in India. Chinese corporate profits and savings are also much higher than those in late industrializers in Asia, including Japan – 15 per cent of GDP during the 1960s – and Taiwan and Korea – 12 and 8 per cent of GDP, respectively, in the first half of the 1980s. While Chinese household savings as a proportion of disposable income have been rising in recent years, their share in national savings has been declining because of significantly faster growth of corporate profits and savings.²⁷

In China the disparity between consumption and investment and the consequent dependence on foreign markets is largely the outcome of the imbalance between wages and profits. Wages in China constitute a very large proportion of household income because government transfers and investment income, including dividends, are very small.²⁸ Despite registering impressive increases, wages have lagged behind productivity growth and their share in value-added has been declining.²⁹ Since the early

²⁶ This is because consumption generates more domestic value-added than exports: its imports content (α) is lower than the import content of exports (δ), and its share in GDP is about the same as the share of exports, as conventionally measured.

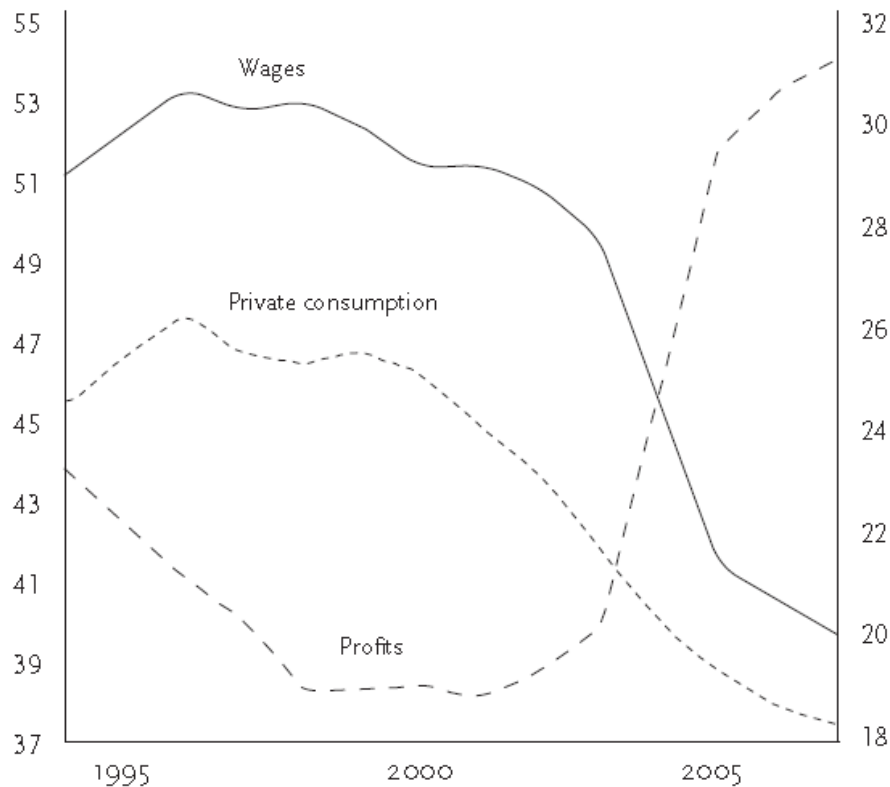
²⁷ For household and corporate savings in early industrializers see Akyüz and Gore (1996) and UNCTAD TDR (1997: Table 44). For savings in China and India see Prasad (2009). See also Anderson (2007b) for a discussion of household and corporate savings in China.

²⁸ According to Aziz and Cui (2007) in 2005 investment income accounted for 3 per cent of households' disposable income while government transfers were no more than 0.5 per cent of GDP.

²⁹ On recent behaviour of labour productivity, profits and wages and consumption, see Kim and Kuijs (2007), and WB CQU (August 2006 and February 2007).

years of the decade labour productivity in manufacturing has grown by some 20 per cent per annum while nominal wage increases have been under 15 per cent and real wage increases even lower. Profits rose faster than sales and the share of labour cost in total gross output in mining, manufacturing and utilities fell from 11.5 per cent in 2002 to 7.1 per cent in 2006: for the economy as a whole, the share of wages in GDP fell to about 40 per cent after fluctuating between 50-55 per cent in the 1990s. High share of profits in value-added, non-payment of dividends to the government by state-owned enterprises and tax incentives are the main reasons for increases in the shares of corporate retentions and investment (WB CQU August 2005; Kuijs 2005; Yongding 2007; and Aziz and Dunaway 2007). The downward trend in the share of wages in GDP is almost perfectly mirrored by the share of private consumption in GDP (chart 1).

Chart 1: Wages, profits and private consumption
(As a percentage of GDP)



Source: Ho-Fung (2009)

Profits right scale; wages and consumption left scale.

It is true that success in industrialization crucially depends on the pace of capital accumulation, which, in turn, depends very much on the volume of profits and the extent to which they are used for investment. High corporate retentions and a dynamic profit-investment nexus, rather than high household savings, were indeed the key distinguishing components of successful industrialization in East Asia (Akyüz and Gore 1996). China is not an exception in this respect. However, unlike China, most late-industrializers, particularly Japan and Korea, did not rely on cheap labour and cheap

currency. In these countries wages and private consumption grew in tandem with productivity and underpinned the expansion of productive capacity by providing a growing internal market. Private consumption as a proportion of GDP in the NIEs and Japan have constantly exceeded that of China since the mid-1980s and the gap rose to 18 percentage points in recent years.³⁰

In view of bleak export prospects, a return to trend growth in China crucially depends on a sizeable increase in the share of household income in GDP and a corresponding decline in corporate profits, savings and investment. This calls for a higher share of wages in value-added and significantly greater government transfers to households, particularly in rural areas where incomes remain depressed. Greater public spending on social infrastructure in health, housing and education would not only improve social welfare but also serve to reduce relatively high precautionary household savings. These expenditures and income transfers can be financed by dividend payments by state-owned enterprises, thereby simultaneously curbing excessive investment.

A shift from export-led to consumption-led growth would also require significant industrial restructuring. An important part of Chinese exports are specific to foreign markets with little domestic demand. Unlike in the mainstream (neo-classical) theory of production where “factors of production” can be shifted freely among different lines of production to produce different goods and services, in reality skills, capital equipment and organizational structures are often industry-specific and even product-specific. This means that adjustment in the production structure would depend primarily on reallocation of new investment and skills towards areas that need to expand to meet higher domestic consumption. In this process state guidance of investment could no doubt play an important role.

V. IMPLICATIONS FOR CHINA’S ASIAN SUPPLIERS

The impact of a persistent slowdown in exports to the US and the EU on growth in the DEEs participating in the Sino-centric East Asian production network depends on the relative importance of exports in income generation and the proportion of exports destined, directly or indirectly, to these markets. Although detailed and reliable estimates of import contents of exports are not readily available for these countries, the dependence of their growth on exports appears to be no less than in China.

The evidence examined above suggests that the import content of exports is lower in Indonesia, Korea, Taiwan and Thailand than in China.³¹ With the exception of

³⁰ See Ho-Fung (2009) who argues that the urban-industry biased development model “is the source of China’s prolonged ‘limitless’ supply of labour, and thus of the wage stagnation that has characterised its economic miracle” and that China’s “export competitiveness has been built upon long-term wage stagnation.”

³¹ These include the estimates of import intensity of exports in Johnson and Noguera (2009), Hummels *et al.* (2001) and Anderson (2007a), as well as those implied by income multipliers estimated from the Oxford Economic Forecasting model noted above.

Indonesia, these countries also have higher X/GDP ratios (Table 8). Consequently, their VAX/GDP ratio can be estimated to be much higher than that in China, in the order of 30-40 per cent, compared to some 20 per cent in the latter country. On the other hand, although export growth in these countries before the crisis was considerably slower than that in China, their GDP growth rates were also lower. It thus follows that in these countries the contribution of exports to growth was higher than the contribution of exports to growth in China, likely to be over 60 per cent, in comparison with 40–50 per cent in the latter country.

Table 8: Exports in DEEs Linked to Sino-Centric East Asian Production Network
(Per cent)

	Real Export Growth (2004-08)	X/GDP (2004-08)	Exports Shares by Partners: 2008		
			US	EU	China
Indonesia	11.5	31.3	9.5	11.3	8.5
Korea	11.4	42.9	10.9	13.7	21.4
Malaysia	7.4	112.7	12.5	11.3	9.5
Philippines	7.3	45.0	16.7	17.3	11.1
Singapore	10.7	233.8	7.1	10.3	9.2
Thailand	7.1	73.5	11.4	12.9	9.2
Taiwan	8.2	68.9	12.0	11.0	26.2
Vietnam	26.1	72.8	18.9	17.2	7.2

Source: ADB and IMF and National Sources.

By contrast, exports from Malaysia, Singapore and Vietnam have higher import contents than China – in Singapore, as noted, re-exports account for half of total exports. However, these countries have much higher X/GDP ratios than China; twice in the case of Vietnam, more than three times for Malaysia and 6 times for Singapore. Consequently their VAX/GDP ratios should also be higher than that in China despite greater import contents of their exports. In these three countries the contribution of exports to growth in the pre-crisis period can be estimated to have been greater than not only the contribution of exports to growth in China but also in the first group of countries above.

It follows that, generally, the East Asian DEEs in the Sino-centric production network are more vulnerable to a sustained slowdown in exports than China. The only exceptions are Indonesia and, to a lesser extent, the Philippines – the countries that have been relatively less affected by the fallouts from the global crisis.

The US and the EU account for much higher proportions of exports of China (in the order of some 25 per cent each) than exports of the countries in Table 8. China has become the largest export market for an increasing number of East Asian DEEs, notably Korea and Taiwan. However, an important part of Chinese imports from these economies is used for inputs into exports of final consumer goods to the US and the EU. Indeed, there is a close correlation between Chinese exports to the US and the EU and its imports from East Asian DEEs.³² The indirect exposure of East Asian DEEs through China to a slowdown in exports to the US and the EU can thus be as important as and even more important than their direct exposure.

Estimates suggest that an important proportion of the value-added contained in China's exports to the US and EU is generated in East Asian DEEs supplying components, parts and other intermediate inputs to China. In 2002, 42 per cent of all imported intermediate inputs came from Asian DEEs, more than 30 per cent from the NIEs and 10 per cent from other Asian DEEs (Dean *et al.* 2008). With a foreign content of 50 per cent, this means that for every \$100 exports of China, \$21 would go to other Asian DEEs to pay for imports. Although the overall share of Asian DEEs in Chinese imports of intermediate goods has been falling in recent years, they remain sufficiently high for Korea and Taiwan to render them highly vulnerable to a sharp slowdown in China's exports to the US and the EU. Indeed, a large proportion of negative export shocks to China during 2008-09 were passed onto these two countries which saw, together with Japan, their exports to China falling much more sharply than exports of other DEEs in the region.³³

For processing exports, the share of Asian DEEs in Chinese exports is even higher. As noted, the foreign value-added share of these exports is in the range of 75-80 per cent. In recent years around 50 per cent of parts and components for Chinese processing exports came from East Asian DEEs (Athukorala 2008, 2009). This means that for every \$100 worth of processing exports of China to the US and EU, about \$35-\$40 go to East Asian DEEs and \$20-\$25 to China. Since, as noted, processing exports constitute a very large share of Chinese exports to the US (close to 80 per cent), and parts and components account for a large share of total exports of East Asian DEEs to China, a slowdown of Chinese exports to the US and EU can have a strong impact on East Asian DEEs.

These considerations lend support to two conclusions. First, since an important part of exports of East Asian DEEs to China are linked to China's exports to the US and the EU, the overall exposure of these DEEs to a sustained slowdown in the US and the EU is much greater than is suggested by their direct exposure. This, together with greater dependence of their growth on exports, implies that the DEEs in the Sino-centric

³² See Kim, Lee and Park (2009). Indeed, the entire intra-East Asian non-oil exports are highly correlated with US non-oil imports.

³³ For China's trade during the 2008-09 crisis, see Athukorala and Kohpaiboon (2009). Japan is among the countries most exposed to a shift of China from exports to the US and the EU to consumption-led growth since it provides over 15 per cent of China's total intermediate imports.

East Asian production network are more vulnerable to a sustained slowdown of Asian exports to the US and the EU than China.

Second, while China is a major importer from East Asian DEEs, it is not a major market for them since an important part of Chinese imports are destined to exports to advanced economies rather than used internally. Domestic consumption and investment in China generate proportionately much less demand for imports from East Asian DEEs than its exports to the US and the EU. Consequently, a shift by China from export-led to a consumption-led growth and a shift by the US in the opposite direction would result in a significant slowdown of their combined imports from DEEs, notably those closely participating in the East Asian production network. A \$100 increase in Chinese consumption increases imports by less than \$10 while a \$100 decline in US consumption reduces imports by some \$25. In other words, at its current pattern of domestic spending, the Chinese market is not a good substitute for the US and the EU markets for East Asian DEEs.

To become a regional locomotive, China would need to raise not only its domestic consumption as a proportion of GDP, but also its import content and, in particular, its imports of final goods from the region. While the share of such goods in China's imports from the region has been increasing in recent years (Athukorala 2008; Kim, Lee, Park 2009), production sharing continues to dominate the intra-regional trade. Moreover, even if there is a rapid increase in domestic consumption and its import content in China, the East Asian DEEs linked to the Sino-centric production network may not be able to expand their exports rapidly because intra-regional network trade is crucially different from trade in final goods. A shift from the former to the latter would call for industrial restructuring and a significant change in the mix of their exports. For the same reason a shift to alternative markets may prove to be difficult even for smaller countries supplying parts and components to China for its exports to the US and the EU. The same problem would also be encountered in reducing dependence on exports by shifting to domestic markets.

Outside China a main reason for excessive reliance on exports is under-investment. In several economies including Malaysia, Singapore, Philippines, Taiwan and Indonesia, investment rates have been hovering around 20 per cent of GDP in recent years, less than half the rate in China. In none of these economies have investment rates recovered the levels attained before the 1997 crisis (Akyüz 2009). Even recognizing that the pre-crisis investment boom was an unsustainable bubble driven by massive capital inflows, recent investment rates are too low to generate a rapid growth of either productive capacity or effective demand.

Exceptionally high investment in China and low rates of investment in the rest of East Asia are related. Generous incentives provided by China to export-oriented Foreign Direct Investment (FDI) play an important part in attracting large amounts of investment from the region. There is a need to redistribute aggregate investment within East Asia, from China towards the rest. This would be greatly helped if China were to start focusing on domestic markets, downsizing and dismantling incentives to export-oriented FDI.

Private consumption has also been weak in most East Asian countries. In Korea, Malaysia, Taiwan and Thailand its share in GDP barely reaches 55 per cent—

much below the rates in more affluent countries such as the US (over 70 per cent) and the EU (some 60 per cent). Singapore is another under-consumption economy in the region where the share of private consumption in GDP has been declining since the beginning of the decade – it is now below 40 per cent while national savings are as high as 53 per cent of GDP, very much like in China. With investment hovering at around 20 per cent of GDP until the property boom in 2007, the economy was able to generate a current account surplus as much as a quarter of its GDP.³⁴

For most East Asian countries a sharp slowdown in exports may not lead to tight balance-of-payments constraints given their large current account surpluses and reserves. However, several countries, including some large economies such as Vietnam, face weak payments positions and rely on capital inflows despite strong export performance. Tighter global economic and financial conditions in coming years compared to those in the run-up to the global crisis may widen their payments gaps and make it more difficult to raise external financing. Several South Asian economies which can provide large markets for East Asian exports also face similar external constraints. China, with its vast reserve holdings, can thus play an important role in reducing the dependence of such countries on western financial markets and expanding the markets in Asian DEEs for increased south-south trade.

³⁴ Weak private consumption in Singapore also seems to have its origin in a low share of labour income in GDP – see Mah-Hui and Maru (2009) which reiterates that Singapore has a First World per capita income level but an income distribution profile of a Third World economy.

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ISSN 1819-6926